International Journal of Business
Management & Research (IJBMR)
ISSN(P): 2249-6920; ISSN(E): 2249-8036
Vol. 7, Issue 2, Apr 2017, 1-8

Original Article

A CAMEL ANALYSIS OF PRE AND POST MERGER PERFORMANCE OF BANKS IN INDIA

JAYEETA PAUL

Department of Commerce, Netaji Nagar Day College, Regent Estate, Kolkata, West Bengal, India

ABSTRACT

Economic liberalization as a product of globalization since the early 1990s has resulted in developing a sense of urgency among the corporate entities to analyse the impact of restructuring strategies on the performance of the organizations. Incidentally, the Government of India along with the Reserve Bank of India have initiated mergers and acquisitions of the Indian banking sector with the anticipation that it would accrue benefits to the banks in terms of economies of scale and also make an attempt to make the Indian banks more competitive and effective in the global sphere. In this paper, an attempt is being made to analyse and compare the pre and post merger performance of acquiring banks during the period 2000-2012 with the help of the CAMEL ratios. For this purpose 10 commercial bank mergers in India was selected for the study and different financial ratios are considered to reflect on the following important parameters like capital adequacy, asset quality, management efficiency, earning quality and liquidity.

KEYWORDS: CAMEL Ratios, Banks, Mergers and Acquisitions

Received: Jan 07, 2016**; Accepted:** Feb 10, 2017; **Published:** Feb 16, 2017**; Paper Id.:** IJBMRAPR20171

INTRODUCTION

The financial service sector in total and the banking industry particularly in many developing countries have observed fundamental changes coupled with a significant change in approach with the objective of achieving an efficient functioning of the system. Economic liberalization as a product of globalization since the early 1990s has resulted in developing a sense of urgency among the corporate entities to analyse the impact of restructuring strategies on the performance of the organizations. This resulted in a considerable number of studies on M & A not only in India but worldwide. Incidentally, the Government of India along with the Reserve Bank of India have initiated mergers and acquisitions of the Indian banking sector with the anticipation that it would accrue benefits to the banks in terms of economies of scale and also make an attempt to make the Indian banks more competitive and effective in the global sphere. In this paper, an attempt is being made to analyse and investigate the effectiveness of this consolidation mechanism of the RBI to increase the competitiveness of the Indian Banking industry by employing a ratio based approach. For this purpose, CAMEL ratios are used to examine the performance of the banks pre and post merger for each of the important parameters like capital adequacy, asset quality, management efficiency, earning quality, liquidity and sensitivity.

OBJECTIVE OF THE STUDY

The present study has the following objective :

- To evaluate adopting CAMEL ratio analysis approach, the performance of the selected commercial banks in India before and after merger, during the period 2000-2012.

HYPOTHESIS OF THE STUDY

H_0: There is no significant change in the CAMEL ratios of the merged banks pre and post merger.

H_1: There is significant change in the CAMEL ratios of the merged banks pre and post merger.

REVIEW OF LITERATURE

In literature, there has been many studies conducted on the impact of consolidation on the efficiency of the banks. The studies that have been done to examine the impact of mergers and acquisitions on the banks performance which can be broadly classified into two heads – (i) ex-ante studies and (ii) ex-post studies. Ex-ante studies refers to those studies which seeks to assess the effect of merger on the performance of banks by reviewing the reaction of the stock market to the announcement of merger. On the other hand, ex-post studies makes an attempt to assess the effect of merger on the performance of the banks by performing a comparative study of the pre and post merger performance of the merging banks. This comparison can be done by the use of either traditional financial ratio analysis or by econometric and frontier analysis.

Smith (1971) examined through the application of ratio analysis how the impact made by the merger on the performance of merging banks as compared to that of the non-merging control group. For this purpose he selected 23 banking ratios which focused on the asset structure, loan portfolio, expenses, earnings and profitability of the banks. The main findings of his study was that the bank mergers results in value creation primarily because of the enhancement in revenues of the merging banks due to the improvement in the liquidity position. Vennet (1996) also conducted a study to evaluate the impact of mergers on the efficiency of European Union banking sector by the use of some key financial ratios and stochastic frontier analysis for the period 1988-93 and concluded that merger results in an improvement in the efficiency of the participating banks. Cavallo and Rossi (2001) recommended that mergers and acquisitions should be encouraged in the banking industry as it accrues benefit both for the small and the large banks. It facilitates the small banks to enhance their scale and the large banks to enter into new product lines. Barr et al. (2002) observed that in the banking industry the CAMEL rating has emerged as an indispensable tool for the regulators as this rating criterion reveals whether the financial condition of the bank is sound or not as it reviews the various aspects of a bank. Said and Saucier (2003) conducted the research on the Japanese banks employing CAMEL rating methodology for the period 1993-1999 and examined the capital adequacy, assets and management quality, earnings ability and liquidity position of the banks. Prasuna (2003) used the CAMEL Model to analyse the performance of the Indian banks by taking a sample of 65 banks for the period 2003-04. His study suggested the existence of severe competition in the banking industry which leads to improved service quality and development of innovative products for the customers. Nurazi and Evans (2005) studied whether the application of CAMEL's ratios is able to predict the bank failures. Their study recommended that the adequacy ratio, assets quality, management, earnings, liquidity and bank size are statistically significant in providing proper explanation for the failure of the banks.

RESEARCH METHODOLOGY

Sampling Design

The period of study selected for the research is 2000-2012 (i.e. the post liberalization period), to compare the pre and post-merger financial performance of the acquiring banks in India. The bank mergers which overlapped and occurred during the window period (-3 and +3 years not including the year of merger) were excluded from the sample for attaining a clean data set. Finally a sample of 10 commercial bank mergers were selected for the purpose of the study (Table 1).

Table 1: List of Select Commercial Bank Mergers in India for the Purpose of Ratio Analysis

Sl. No.	Acquiring Bank	Target Bank	Year of Mergers & Acquisitions	Pre-Merger Period	Post Merger Period
1.	ICICI Bank	Bank of Madura	2001	1998 - 2000	2002 - 2004
2	Bank of Baroda	Benares State Bank Ltd.	2002	1999 - 2001	2003 - 2005
3	Punjab National Bank	Nedungadi Bank Ltd.	2003	2000 - 2002	2004 - 2006
4	Oriental Bank of Commerce	Global Trust Bank Ltd.	2004	2001 - 2003	2005 - 2007
5	Centurion Bank Ltd	Bank of Punjab Ltd.	2005	2002 - 2004	2006 - 2008
6	Federal Bank Ltd	Ganesh Bank of Kurundwad Ltd.	2006	2003 - 2005	2007 - 2009
7	IDBI Bank Ltd.	United Western Bank Ltd.	2006	2003 - 2005	2007 - 2009
8	Indian Overseas Bank	Bharat Overseas Bank Ltd.	2007	2004 - 2006	2008 - 2010
9	ICICI Bank Ltd.	Sangli Bank Ltd.	2007	2004 - 2006	2008 - 2010
10	HDFC Bank Ltd	Centurion Bank of Punjab Ltd.	2008	2005 - 2007	2009 - 2011

Research Design

With the intention of testing the hypothesis and comparing the pre - and post-merger performance of the acquiring banks, the study uses three years data before and three years data after the merger year. In this study the merger year is referred to as (T_0) while the pre and post-merger years are expressed as (T-3, T-2, T-1) and (T+1, T+2, T+3) respectively. The year T_0 has intentionally being excluded for the purpose of analysis as there is a chance that the figures of the merger year may be highly affected by one-time merger costs which may make it difficult to compare them with the figures of the other years. The evaluation of the impact of the mergers and acquisitions on the performance of the acquiring banks in the post merger period has been undertaken on the basis of the CAMEL ratios.

Capital Adequacy Ratios

- **Capital Adequacy Ratio**: The capital adequacy ratio (CAR) focuses on the ability of a bank to cope with the probable loan defaults and thereby safeguard the bank against bankruptcy. It is computed as the ratio of banks capital in relation to its current liabilities and risk weighted assets.
- **Debt Equity Ratio**: Debt Equity Ratio indicates the financial leverage of the bank which focuses on the proportion of the equity and debt capital in the capital structure.
- **Total Advances to Total Assets Ratio**: This ratio reflects the aggressive approach resorted to by the banks in providing advances which ultimately increases the profitability of the bank.
- **Government Securities to Total Investment Ratio:** This ratio focuses on the amount invested by a bank in government securities as a percentage of the total investments held by the bank.

Asset Quality Ratios

- **Net Non-Performing Assets (NPA) to Net Advances Ratio:** This ratio focuses on the quality of the advances made by the bank.
- **Gross Non-Performing Assets to Net Advances Ratio:** Gross Non-Performing Assets (GNPA) to Advances Ratio is an indicator of the quality of assets in a situation, where the management has not considered the losses on NPAs.
- **Total Investments to Total Assets Ratio**: The total investment to total asset ratio focuses on the proportion of the total assets that are being invested by the bank to protect itself against the risk of non-performing assets.
- **Net Non-Performing Assets to Total Assets Ratio:** This ratio is being used to reflect upon the quality of the bank loans.

Management Efficiency

- **Total Expenditure to Total Income Ratio:** Every enterprise strives to minimize cost and maximize profit and a bank is not an exception to it.
- **Total Advances to Total Deposits Ratio:** This ratio reflects how efficiently the bank is able to convert its deposits to advances for earning interest income.
- **Total Income to Total Assets Ratio:** This ratio is an indicator of the ability of the bank to utilize its resources to generate income, both interest as well as the non interest income.
- **Profit per Employee**

  This ratio is an indicator of the average profit earned per person employed by a bank.
- **Business per Employee:** This ratio focuses on the efficiency of the bank employees in generating income for the bank.

Earnings Quality

- **Net Profit to Assets Ratio:** Net profit is the residual income remaining after incurring all the expenses of the bank like operating expenses, interest, taxes, etc.
- **Return on Equity:** The return on equity is a significant measure as it reflects the earning of the shareholders on their investment in the bank.
- **Spread to Total Assets:** Interest spread refers to the difference between the interest income earned on interest generating assets and interest expense which is charged on interest bearing liabilities.
- **Interest Income to Total Income Ratio:** A high interest income to total income ratio is always better as it indicates regularity in the income of the bank in the normal course of banking operations.
- **Non-interest Income to Total Income Ratio:** This ratio is an indicator of the ability of a bank to generate the fee based income.

Liquidity

- **Cash to Deposit Ratio:** Cash being the most liquid asset is used to reflect on the liquidity of the bank.
- **Government Securities to Total Assets Ratio:** The investment in government securities both within and outside India is expected to be the safest investment and also the most liquid investment.
- **Total Investment to Total Deposit Ratio:** This ratio is an indicator of the liquidity position of the bank in its ability to fulfill its responsibility towards the depositors of the bank.
- **Liquid Assets to Total Assets Ratio:** This ratio indicates the proportion of the liquid assets of the bank in comparison to that of its total assets.

Sources of Data

The present study primarily depends on secondary data. Data on the financial performance of each of the acquiring commercial banks for three years before and three years after the year of merger were obtained from Prowess database of the Centre for Monitoring Indian Economy (CMIE).

DATA ANALYSIS AND FINDINGS

To examine whether there is a significant difference in the pre and post-merger financial performance of the acquiring banks, Paired-T Test was applied on all the ratios as a test of significance at significance level α= 0.05.

- **Capital Adequacy**

Table 2: Ratios Depicting Capital Adequacy of Acquiring Banks

Sl. No.	Ratios	Mean- Pre Merger	Mean – Post Merger	T	DF	Sig (2 Tailed)	Remarks
1	Capital Adequacy Ratio	11.5597	13.6657	-2.799	2	0.107	Accept H_0
2	Debt – Equity Ratio	16.1524	11.8769	3.970	2	0.06	Accept H_0
3	Total Advances to Total Assets	0.46326	0.54588	-8.969	2	0.012	Reject H_0
4	Government Securities to Total investment	0.72765	0.77226	-5.924	2	0.027	Reject H_0

From the above table 2 representing the overall capital adequacy position of the acquiring banks in the pre and post merger period, it is found that out of the four ratios used to determine the total capital adequacy of the banks, i.e. capital adequacy ratio, debt-equity ratio, total advances to total assets ratio and government securities to total investment ratio, significant difference in the pre and post merger total advances to total assets ratio of the acquiring banks is being observed which suggests that post acquisition the acquiring bank resorted to aggressive lending with the intention of enhancing its profitability or it indicates the possibility of the target bank being an aggressive lender, which is now focused in the total advances to total assets ratio. However, it will help to improve the profitability of the acquirer banks. It is also found that there is significant difference in the pre and post merger government securities to total investment ratio of the acquiring banks, which suggests that the acquiring banks proportion of safe investments from the entire portfolio of investments has improved..It indicates that the risk associated with the investments has reduced, since a sizable amount of investments are made in government securities. Although the government securities yield low returns but they are risk free. Hence, it can be interpreted that post merger, the improvement in government securities to total investment ratio reflects the low risk associated with bank investments. There is no significant difference observed in the capital adequacy ratio and

also the debt equity ratio of the acquiring banks in the pre and post merger period. However, it is evident from table 3, that the acquiring banks were maintaining the minimum capital adequacy ratio as prescribed by the Basel Committee.

- **Asset Quality**

Table 3: Ratios Depicting Asset Quality of Acquiring Banks

Sl. No.	Ratios	Mean-Pre Merger	Mean – Post Merger	T	DF	Sig (2 Tailed)	Remarks
1	Net Non-Performing Assets to Net Advances	3.20266	1.61800	8.928	2	0.012	Reject H_0
2	Gross Non-Performing Assets to Net Advances	0.03705	0.02490	4.143	2	0.049	Reject H_0
3	Total Investments to Total Assets	0.35128	0.30798	10.48	2	0.009	Reject H_0
4	Net Non-Performing Assets to Total Assets	0.01473	0.00682	4.834	2	0.04	Reject H_0

The above four ratios in Table 3 – i.e. net non-performing assets to net advances ratio, gross non-performing assets to net advances ratio, total investment to total asset ratio and net non-performing assets to total assets ratio are used to analyze the overall asset quality of the acquiring banks. It is interesting to note that all the four ratios indicates the presence of significant difference in the pre and post merger ratios of the acquiring banks. It is found that that the net non-performing assets to net advances ratio, the gross non-performing assets to net advances ratio and net non-performing assets to total assets ratio were higher in the pre-merger period, which suggests the increased quantum of bad loans during the pre-merger period. However merger and acquisition have helped these banks to reduce their non performing assets which is reflected in their post merger ratios as it indicates improvement. There is also significant difference observed in the pre and post merger total investment to total assets ratio of the acquiring banks and it is decreasing after merger implying that the proportion of the investments made by the bank to protect itself against the risk of non performing assets is declining.

- **Management Efficiency**

Table 4: Ratios Depicting Management Efficiency of Acquiring Banks

Sl. No.	Ratios	Mean-Pre Merger	Mean – Post Merger	T	DF	Sig (2 Tailed)	Remarks
1	Total Expenditure to Total Income	0.77954	0.78553	-0.407	2	0.724	Accept H_0
2	Total Advances to Total Deposits	2.09112	1.39759	0.911	2	0.459	Accept H_0
3	Total Income to Total Assets	0.09598	0.08735	1.578	2	0.255	Accept H_0
4	Profit Per employee	4.14396	5.55100	-11.77	2	0.007	Reject H_0
5	Business Per Employee	484.336	702.098	-5.052	2	0.037	Reject H_0

There are five ratios as indicated in table 4, which are used to determine the overall management efficiency of the banks. It is found that there is no significant difference in the pre and post-merger total expenditure to total income ratio of the acquiring banks which indicates that though there has been an increase in the expenditure of the banks after merger, but the banks are able to tactfully manage it so that there is a minimum rise from its pre-merger ratio. The total advances to total deposits ratio have decreased post merger and there is no significant difference in the pre and post merger ratio reflecting the fact that the acquiring banks were not able to convert its deposits successfully into high earning advances. Thus the management of the acquiring banks should take necessary steps for enhancing the profitability of the banks. The total income to total assets ratio have also reduced post merger and there is no significant difference in the pre and post merger ratio. This indicates that the acquiring banks are required to effectively utilize the assets for generating more

income. However, the profit per employee and the business per employee have exhibited significant difference in the pre and post merger period and also shown improved post merger performance which indicates better management efficiency of the acquirer banks.

- **Earnings Quality**

Table 5: Ratios Depicting Earnings Quality Of Acquiring Banks

Sl. No.	Ratios	Mean-Pre Merger	Mean – Post Merger	T	DF	Sig (2 Tailed)	Remarks
1	Net Profit to Assets	0.00676	0.00951	-4.631	2	0.044	Reject H_0
2	Return on Equity	13.0185	14.8560	-0.799	2	0.508	Accept H_0
3	Spread to Total Assets	0.02747	0.02607	1.018	2	0.416	Accept H_0
4	Interest Income to Total Income	0.83087	0.82606	0.993	2	0.425	Accept H_0
5	Non-interest income to Total Income	0.16912	0.17393	-0.993	2	0.425	Accept H_0

Out of the five ratios that are used to indicate the overall earnings quality of the banks as indicated in table 5, i.e. net profit to assets ratio, return on equity, spread to total assets, interest income to total income ratio and non-interest income to total income ratio, it is found that there exists significant difference only in the net profit to assets ratio of the acquiring banks in the pre and post merger period. This is not at all a sound indication of the earnings quality of the banks since it reflects the inability of the banks to maintain low interest on deposits and generate high return on the advances. From this, it can be said that though there has been an enhancement in the total assets of the acquiring banks, post merger, it has not been able to leverage on the assets and thereby generate higher income for the bank as is suggested from the spread to total assets ratio. Though there has been a slight increase in the mean return on equity in the post merger period but it is not statistically significant which indicates that the acquiring banks are not being able to create additional revenues after consolidation that could accrue to the shareholders as increased equity. Both the interest income to total income as well as the non-interest income to total income ratios also do not show any significant difference in the pre and post merger period which reflects the fact that the acquiring banks failed to increase the traditional interest income that is fund based and also the fee based income of the banks. Thus the acquiring banks should take necessary steps to enhance its earnings ability so that the consolidation strategy that they resorted to can prove beneficial for the banks.

- **Liquidity**

Table 6: Ratios Depicting Liquidity of Acquiring Banks

Sl. No.	Ratios	Mean-Pre Merger	Mean – Post Merger	T	Df	Sig (2 Tailed)	Remarks
1	Cash to Deposit	7.9617	8.7673	-1.849	2	0.206	Accept H_0
2	Government Securities to Total Assets	0.25374	0.23699	105.58	2	0.000	Reject H_0
3	Total Investment to Total Deposit	0.77971	0.44611	1.124	2	0.378	Accept H_0
4	Liquid Assets to Total Assets	0.98022	0.98614	-2.885	2	0.102	Accept H_0

There are four ratios used to determine the overall liquidity in banks as is evident from table 6. Though there has been a slight improvement in the cash to deposit ratio in the post merger period but it is not statistically significant. The total investments to total deposit ratio and liquid assets to total assets ratio of the acquiring banks does not show any significant difference in the pre and post merger performance indicating that post merger the acquiring banks are successful in maintaining the liquidity position at least similar to their pre-merger performance and fulfill their obligation towards the

depositors of the bank. There is significant difference found in the government securities to total assets ratio of the acquiring banks in the pre and post merger period which suggests that the banks are preferring government securities as it is the safest liquid assets.

CONCLUSIONS

From the above analysis, it can be concluded though there has been an improvement in the capital adequacy and asset quality of the acquiring banks post merger but the management efficiency and earnings quality failed to reflect the ability of the bank to effectively utilize the assets in generating increased income for the bank and thereby its profitability. Even the liquidity position do not indicate any change in the post merger period suggesting the fact that the banks are able to discharge their obligations.

REFERENCES

1. *Barr, Richard S. et al. (2002). "Evaluating the Productive Efficiency and Performance of U.S. Commercial Banks". Engineering Management, 28(8), p. 19.*
2. *Cavallo, L. and Rossi,P.S. 2001. Scale and Scope Economies in European Banking System, Journal of Multinational Financial Management, 11: 515-531.*
3. *Nurazi, R., Evans, M. (2005), An Indonesian study of the Use of CAMEL(S) Ratios as Predictors of Bank Failure, Journal of Economic and Social Policy, 10(1), 1-23.*
4. *Prasuna, D G (2004), "Performance Snapshot 2003-04". Chartered Financial Analyst, Vol. X(11): pg. 6-13*
5. *Said, M-J.B., Saucier, P. (2003), Liquidity, Solvency, and Efficiency? An Empirical Analysis of the Japanese Banks Distress,Journal of Oxford, 5(3), 354-358.*
6. *Smith, D.L. 1971. Performance of Merging Banks. Journal of Business, 44(2): 184-192.*